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EXAMINER				
STOUT, MICHAEL C				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/524,984

Applicant(s)

CZARNEK, ROBERT

Examiner

MICHAEL C. STOUT

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 2/04/2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SG/US)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

This action is a first action based on Patent Application Number 10/524,984 filed 19 August 2003 and is a first action based on the merits of the application. The Amendment and Argument document(s) filed 4th February 2008 are being considered by the Examiner.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

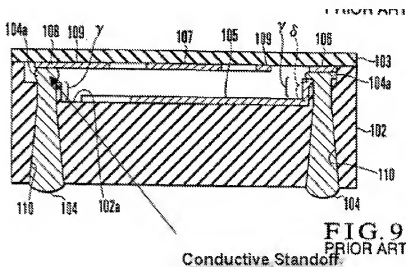
Claims 1 and 3 are rejected under 35 U.S.C. 102(e) as being anticipated by Ishikura et al. (US Patent 6,341,527 B1).

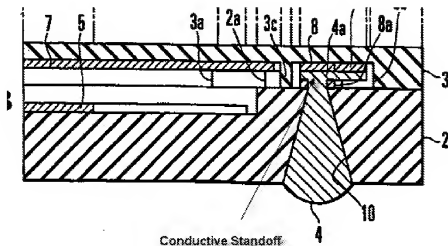
Regarding Claim 1:

Ishikura discloses a capacitive uterine contraction sensor (a capacitive pressure sensor, see Abstract) comprising: an insulating substrate (substrate 102 made of sapphire, silicon, glass or alumina, see Figure 9 and Column 1 Paragraph 4); a first electrode disposed on one side of the substrate (stationary electrode 105, see Figure 9); and a second electrode positioned on the first side of the substrate (a movable diaphragm electrode comprising a deposited metal 107 and diaphragm 103, is positioned on the first side (top side) of the substrate, see Figure 9) in a spaced relation

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to the first electrode (the first and second electrode are separated by a space γ , see Figure 9), at least part of the second electrode configured to move toward or away from the first electrode (the diaphragm and deposited metal 107 in Figure 9 moves towards the stationary capacitor changing the capacitance of the system, see Column 1 Lines 15-33 and 50-58. (The second electrode in Ishikura is considered to be the diaphragm and the metal electrode as is conventional in the art, which often refers to the second movable electrode as a diaphragm electrode because the metal is bonded the diaphragm creating a single piece) and,





a conductive standoff sandwiched between the substrate and the second electrode (an extraction electrode is positioned between the substrate 102 and upper electrode, see Figures 9 and 4b) for maintaining the second electrode in spaced relation to the first electrode, the conductive standoff electrically coupled to the second electrode (as best shown in Figures 9 and 4b above, the second electrode is connected to the individual extraction electrodes represented by 104 that extend through the lower wafer 102, see Column 1 Paragraph 5 and Figure 9) and electrically isolated from the first electrode (each metal electrode component 105, 107, and 109 connects to a separate reference electrode which allows for a capacitance across the electrodes which is electrically detected to measure a pressure change, see Column 1 Lines 50-58, capacitance is a function of voltage and if the elements are not electrically isolated there is no voltage difference between the electrodes, the conductive standoff contacting the electrode is positioned between the substrate and the sensing electrode thereby maintain the electrode in a spaced relation between the substrate and the electrode deposited on the substrates surface).

Regarding Claim 3:

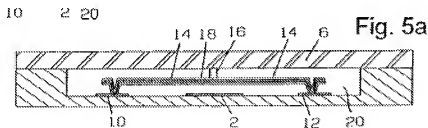
Ishikura discloses the sensor of claim 1 as set forth above, wherein the second electrode comprises a spring mechanism (the upper wafer 103 behaves like a diaphragm, Column 1 Lines 35-37 and see Figure 9), wherein the spring mechanism is electrically isolated from the first electrode (the two non-conducting wafers are connected together, see Figure 9), the second electrode maintained in spaced relation to the first electrode (see Figure 9). (The upper wafer component of the second electrode is a diaphragm (103), which is a spring mechanism that when pressure is applied flexes thereby changing the distance between the electrodes and when pressure is removed returns to its regular position, see Column 1 Paragraphs 5 and 6).

Claims 1 and 3 are rejected under 35 U.S.C. 102(e) as being anticipated by HSU et al. (US Patent 6,604,425 B1).

Regarding claim 1, Hsu teaches a capacitive uterine contraction sensor (see Column 1, Line 66 through Column 2, Line 16) comprising:

an insulating substrate (4); a first electrode (2) disposed on one a first side of the substrate (best shown in Figure 5a); a second electrode (18) positioned on the first side of the substrate in a spaced relation to the first electrode (best shown in Figure 5a), at least part of the second electrode configured to move toward or away from the first electrode (best seen in Figure 5b); and

a conductive standoff sandwiched between the substrate and the second electrode the upper plate (as can be clearly seen in Figure 6d the structure comprises interconnect anchors 24 which connect the upper capacitive plate to the metal pads 10 and 12) for maintaining the second electrode in spaced relation to the first electrode (see Figure 6d), the conductive standoff electrically coupled to the second electrode and electrically isolated from the first electrode (as best shown in Figure 6c the metalized layer 56 is deposited connecting the metal pads to the upper plate, and insulating layers 54 insulate the metal core of the upper plate from the lower plate electrode, in order for a sensor to measure capacitance between electrodes).



Regarding claim 3, Hsu further teaches the sensor wherein the second electrode comprises a spring mechanism (diaphragm 6, see Column 4, Lines 9-29), wherein the spring mechanism is electrically isolated from the first electrode (as can be best seen in Figures 5a and 4, the upper plate in contact with the spring mechanism is electrically isolated from the lower capacitive plate as shown in the circuit diagram in Figure 4), the second electrode maintained in spaced relation to the first electrode (by pip 16).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 4-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu et al. (US 6,604,425 B1) in view of Bell (US 4,158,217).

Regarding claim 4, Hsu teaches an insulating substrate (4); a first electrode (2) disposed on one a first side of the substrate (best shown in Figure 5a); a second electrode (18) positioned on the first side of the substrate in a spaced relation to the first electrode (best shown in Figure 5a), at least part of the second electrode configured to move toward or away from the first electrode (best seen in Figure 5b); wherein the second electrode includes a body (18, see Figure 7) a plurality of tabs (14) extend from the body; and each tab is secured to the substrate via a standoff, (see Figure 6d).

Hsu fails to teach the device comprising a plurality of channels in the body.

Bell teaches a capacitive pressure sensor comprising a first electrode (9) and a second electrode (7) wherein the second electrode comprises a body (2) the body having a plurality of channels (a plurality of nonconductive curved areas 8 and 10, see Column 2, Lines 50-57).

Both Hsu and Bell teach capacitive pressure sensors.

Thus, it would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the device taught by Hsu to include nonconductive areas as taught by Bell in order to increase the fringe effect in order to improve sensor linearity, see Bell Column 3, Lines 1-22.

Regarding claim 5, Hsu further teaches a load transferring button (pip 16) positioned on a side of the second electrode facing away from the first electrode (as best shown in Figure 5a).

Regarding claim 9, Hsu further teaches further the sensor comprising a dielectric (dielectric layer 54) disposed between the first electrode and the second electrode (Figure 6c).

Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu in view of Bell as applied to claim 4 above and in further view of Satou et al. (US 6,631, 645 B1).

Regarding Claims 6 and 7:

Hsu discloses the sensor of claim 4 as set forth above which provides a voltage measurement to a detecting circuit, see Figure 4. However Hsu fails to teach the sensor comprising electronic circuitry for determining a capacitance of a capacitor formed by the spaced relation of the first and second electrodes.

Satou teaches a sensor comprising electronic circuitry for determining a capacitance of a capacitor formed by the spaced relation of a first and second electrodes which reduces temperature error commonly found in pressure sensors. (Figure 4 teaches a circuit for converting the capacitance to a output voltage and Figure 17 shows a sensor with circuitry integrated on a chip where the circuitry includes an oscillator, an output adjusting circuit, and electrode pads (means for communicating with an external unit), see Column 7 Lines 22-32 and Column Lines 59-67).

Both Hsu and Satou teach capacitive pressure sensors. Thus it would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the device taught by Hsu to include electronic circuitry for determining a capacitance of the capacitor as taught in Satou in order to reduce temperature and nonlinear error generally found in pressure gauges, see Satou Column 7 Lines 15-20 and to provide an integrated single unit that can introduced into a system without have to configure a specific circuit to measure the output form the sensor because integrated sensor and circuit units are old and well known in the art.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu in view of Bell as applied to claim 4 above and in further view of Kodama (US 2003/0187370 A1).

Hsu discloses the sensor of claim 1 as set forth above but fails to teach the device further comprising a means for securing the capacitive sensor against an abdomen.

Kodama teaches a sensing device comprising a means for securing (a strap 22, see Figure 3) to press the capacitive uterine contraction sensor against an abdomen.

Both Hsu and Kodama teach sensing devices. Thus it would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the device taught by Ishikura to include a strap 22 as taught in Kodama in order to press the device against the abdominal wall, see Kodama [0024].

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu in view of Bell as applied to claim 4 above, and in further view of Hegner et al. (US 5,836,063)

Hsu in view of Bell teaches the sensor of claim 4 as set forth above, comprising conductive sheets 10 and 12 on one side of the substrate.

Hsu fails to teach the device comprising a conductive sheet on each side of the substrate wherein the conductive sheets are electrically connected; the first electrode is electrically isolated from the conductive sheet on the one side of the substrate; and the second electrode is electrically connected to the conductive sheet on the one side of the substrate.

Hegner teaches a sensor comprising conductive sheets on both sides of a substrate (see Figures 1 and 2), wherein: the conductive sheets (17 and 27, Figure 1) are electrically connected, the first electrode (20, Figure 1) is electrically isolated from the conductive sheet (27) and the second electrode which forms a conductive sheet (17) is electrically connected to the sheet (27), see Figure 1.

Because both Hsu and Hegner teach capacitive sensors it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device taught by Hsu to include contacts as taught by Hegner in order to provide external terminals to connect the sensor to a circuit, see Hegner Column 5, Lines 10-26, because when there is a design need or market pressure to solve a problem and there are a number of identified, predictable solutions, a person of ordinary skill has good

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reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product is not of innovation but of ordinary skill and common sense.

Allowable Subject Matter

In the previous office action the original Claim 4 was indicated allowable but has been reconsidered under further examination and is address in the action above.

Response to Arguments

Corrections

Drawings

The Examiner acknowledges the corrections to the drawings filed 4th February 2008 overcome the objections of the Office Action dated 2nd November 2007.

Specification

The Examiner acknowledges the corrections to the specification filed 4th February 2008 overcome the objections of the Office Action dated 2nd November 2007.

Claim Rejections - 35 USC § 112

The Examiner acknowledges the corrections to the claims filed 4th February 2008 overcome the 35 U.S.C. 112 2nd rejections and has therefore withdrawn the previous 35 U.S.C. 112 2nd rejections of the Office Action dated 2nd November 2007.

Applicant's arguments filed 4th February 2008 have been fully considered but they are not persuasive.

The Applicant argues Ishikura does not disclose "a conductive standoff sandwiched between the substrate and the second electrode for maintaining the second electrode in spaced relation to the first electrode," as stated in the originally presented claim 2, which is incorporated into the amended claim 1.

The Examiner Disagrees.

In response to applicant's argument that Ishikura does not disclose "a conductive standoff sandwiched between the substrate and the second electrode for maintaining the second electrode in spaced relation to the first electrode," is a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed

invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

Ishikura discloses conductive standoff connects the output terminals to their respective electrode contacts and the conductive standoff is physically positioned between the electrode and the substrate which comprises the first electrode. While the upper diaphragm provides the main supporting means for position of the second electrode, the physical connection and position of the conductive standoff between the second electrode is capable of maintaining the distance between the second electrode and substrate/first electrode.

Contact Info

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL C. STOUT whose telephone number is (571)270-5045. The examiner can normally be reached on M-F 7:30-5:00 Alternate (Fridays).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Max Hindenburg can be reached on 571-272-4726. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/M. C. S./
Examiner, Art Unit 3736

/Max Hindenburg/
Supervisory Patent Examiner, Art Unit 3736